ALOPECIA

CLASSIFICATION OF ALOPECIA

Physiologic alopecia→ daily hair loss →50-150 hairs

Pathological

A- Non-Cicatricial Alopecias → preserved follicular ostia
→No inflammation

→ Focal hair loss

1-Alopecia areata

2-traction alopecia

3-Pressure-Induced

4- Alopecia Syphilitica

5- Temporal triangular alopecia

6-Localised infection→ fungal, bacterial, viral

7-skin disease→ SD, AD, CLE, PRP, psoriasis, T-cell lymphoma

8-Systemic diseases →↓ Iron, ↓ Thyroid hormone, SLE, Syphilis, Severe acute or chronic illness

→Patterened hair loss

1. Androgenetic alopecia

2. Trichotillomania

→Diffuse hair loss

1-Telogen effluvium

2-anagen effluvium

3-short anagen syndrome

4- Atrichia with papules

8- Lipedematous alopecia

B-Cicatricial Alopecia →loss of follicular ostia (atrophy)
→ inflammation
→histologic confirmation
→ no effective treatment →stop further loss

→Senescent alopecia →senile alopecia→ late-onset androgenetic alopecia

→secondery

1-Traumatic

1- Injury
2- Surgery
3- Radiation
4- Traction (tight curls)

2-Infections

1- Bacterial infection: boils and abscesses (Staphylococcus aureus)
2- Fungal infection: kerion (inflammatory tinea capitis)
3- Viral infection: shingles (herpes zoster)

→Primary→INFLAMATORY

1: Lymphocytic

1-DLE
2- Lichen planopilaris (LPP)→ patchy
- Classic LPP
- Frontal fibrosing alopecia
- Graham-Little syndrome

3-Brocq's alopecia
4- Central centrifugal cicatricial alopecia (CCCA)
5-Alopecia mucinosa
6- Keratosis follicularis spinulosa decalvans

2. Neutrophilic

1- Folliculitis Decalvans
2- Dissecting cellulitis

3. Mixed

1-Acne keloidalis
2- Acne necrotica
3- Erosive pustular dermatosis

4. Nonspecific

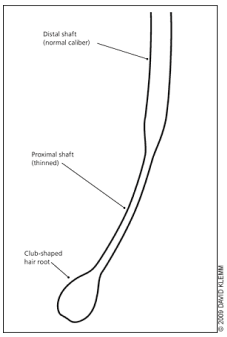
C- Biphasic alopecia

Early Non-Cicatricial→ late Cicatricial

A- Non-Cicatricial (non-scarring) Alopecias

→Focal hair loss

1-Alopecia areata



Causes

- Viral infection
- Trauma
- Hormonal change
- Emotional/physical stressors

C/P

- →Recurrent
- →any hair-bearing area
- smooth, slightly erythematous (peach color) or normal-colored
- exclamation point hairs→ pathognomonic
- 2- to 3-mm in length, broken or tapered, with a club-shaped root
- +ve pull test at the periphery →disease is active,
- +/-burning sensation or pruritus
- Regrowing hairs are often initially coloured white or grey; they may be curly when previously straight.

Site

- Scalp - 66.8-95%
- Beard - 28% of males
- Eyebrows - 3.8%
- Extremities - 1.3%

Type

→Patchy

- Single patch - 80%
- Two patches - 2.5%
- Multiple patches - 7.7%

stages

- Sudden loss of hair
- Enlargement of bald patch or patches
- Regrowth of hair
- One patch fall while another regrow

→Reticular →extensive +patches coalesce

→Ophiasis → sides and lower back of the scalp

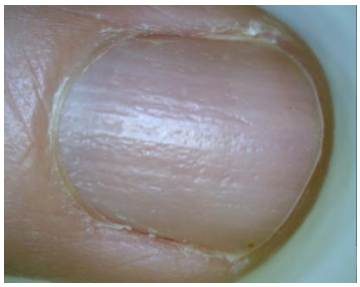
→**Sisaipho** (ophiasis spelled backwards) → Hair loss→ spares the sides and back of the head

→**Alopecia totalis**→100% scalp

→**Alopecia universalis** → all hair-bearing areas

→**Diffuse alopecia areata (incognita)** →sudden diffuse thinning → grey persisting hair "turning white overnight"
→+ve hair pull test
DD→telogen effluvium or hair loss due to medications

→**Alopecia areata of the nails** →pitting and ridging



Associated conditions

- Atopic dermatitis
- Vitiligo
- Thyroid disease
- Collagen-vascular diseases
- Down syndrome
- Psychiatric disorders
- Stressful life events in the 6 months before onset

PRGNOSIS

Single bald patch→ spontaneous regrowth → within a year

Poor prognostic

- Extensive disease
- persisting →↑1 year
- Ophiasis
- nails
- before puberty
- + veFamily
- other autoimmune diseases
- Down syndrome

Treatment

Medical

1-Corticosteroids

a-Intralesional→less than 50%
→Triamcinolone acetonide→2.5-10 mg/mL
→every 4-6 weeks
face→2.5 mg/mL
scalp→5 mg/mL

b-Topical corticosteroid→ 3 months+maintenance therapy
→Fluocinolone acetonide cream 0.2%
twice daily betamethasone dipropionate cream 0.05%
→ refractory alopecia totalis alopecia universalis
→ 2.5 g of clobetasol propionate under occlusion
→ 6 days/wk → 6 months

2-Topical immunotherapy

3-SADBE DPCP

4-Anthralin →*short-contact or overnight treatments*

5-Minoxidil →*extensive* disease (50-99% hair loss)
→Not alopecia totalis or alopecia universalis
→12 weeks &continued

6-Psoralen plus *UV-A*→ 20-40 treatments relapse in months

7-Topical cyclosporine →limited efficacy

8-Topical tacrolimus

9-Methotrexate, with or without systemic corticosteroids

10-JAK inhibitors→oral tofacitinib or oral ruxolitinib→ Janus kinase (JAK) inhibitors→block interleukin (IL)-15 signalling.

Cosmetic treatment

Dermatography →eyebrows →2-3 sessions

Hairpieces →extensive disease

2-Traction alopecia

Causes

Prolonged or repetitive tension→

- tight chignon, cornrows, dreadlocks, weaves and braids
- hair extensions
- chemical relaxers and rollers
- weight of excessively long hair

African-American females → temporal scalp

Sikh males→ submandibular traction alopecia

Clinical

Large variation in the pattern

- Itching
- Redness
- Scaling
- Folliculitis or pustules
- Multiple short broken hairs
- Thinning and hair loss

Fringe sign→ retained hairs along the frontal and/or temporal rim

Non-cicatricial→ but prolonged and excessive tension leads to destruction of the hair follicles and permanent alopecia

Histological

Early	later
Trichomalacia	Vellus
↑catagen	fibrotic fibrous tracts

Treatment

- Loosen the hair style.
- Cut long hair.
- Avoid chemicals and heat.

Medical

- Antibiotics → - infection
- Topical or intralesional steroids
- Topical antifungal shampoos
- Biotin supplements
- Minoxidil
- Hair replacement surgery

3-Pressure-Induced

Postoperative or pressure alopecia→ non-scarring (early) →scarring (late) alopecias→ **due to** ischemic changes to the scalp

clinical→ occiput→ within a few weeks of surgery or a prolonged period in an Intensive Care Unit (ICU)

+/- Tenderness, swelling, or ulceration in the scalp prior to the alopecia

4- Alopecia Syphilitica

Uncommon manifestation of secondary syphilis

Clinical →patche→ diffuse non-scarring, 'moth-eaten' the whole scalp

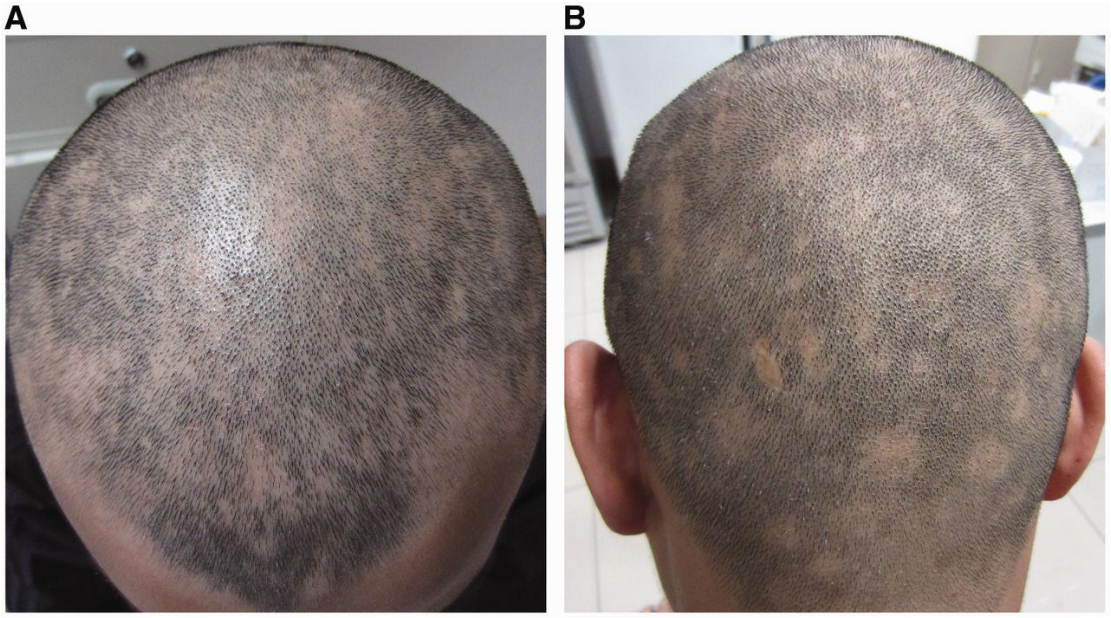
- Diffuse pattern
- Classic patchy moth-eaten pattern
- Combination of both two types

Types

- Symptomatic syphilitic alopecia' → other lesions of secondary syphilis
- Essential syphilitic alopecia→ -ve cutaneous manifestations

DD

- Alopecia areata→ Syphilitic alopecia→ resemble alopecia areata→ clinically and histopathologically→ characteristic→ peribulbal eosinophils
- Tinea capitis
- Trichotillomania.



5- Temporal triangular(congenital) alopecia

Brauer nevus

clinical →patch →complete or vellus hairs
→ childhood
→triangular, lancet-shaped circumscribed
→fronto-temporal region

DD alopecia areata→ does not respond to topical or intra-lesional steroids

TTT → 3% topical minoxidil
→ Hair transplantation

6-Localised infection→ fungal, bacterial, viral

7-skin disease→ SD, AD, CLE, PRP, psoriasis, T-cell lymphoma

8-Systemic diseases →↓ Iron, ↓ Thyroid hormone, SLE, Syphilis, Severe acute or chronic illness

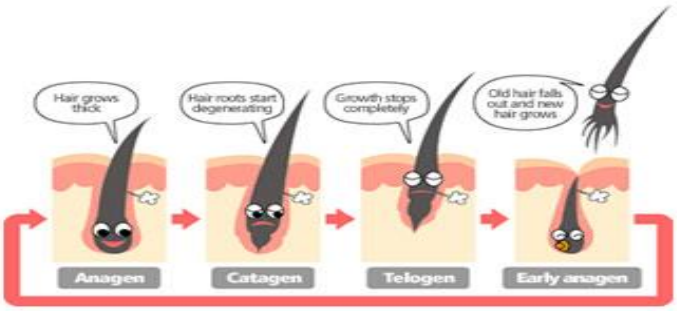
Skin signs of iron deficiency anaemia

Hair→ dry - brittle – dull - fall

Nails→ Brittle fragile koilonychia (spoon shaped nails).

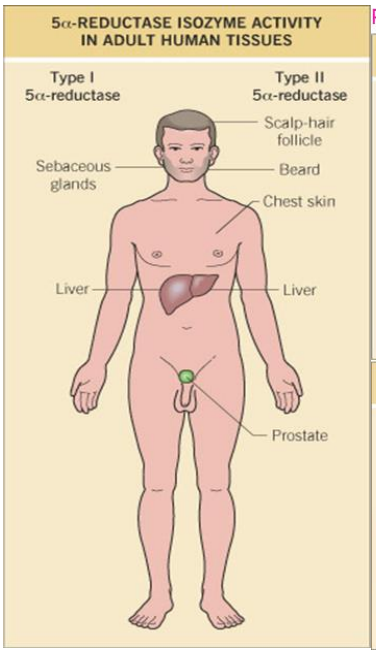
skin→ Pale→ palm creases and conjunctiva
→ bacterial and fungal infections

Mucosa→ Dry mouth
→Angular cheilitis
→Atrophic glossitis

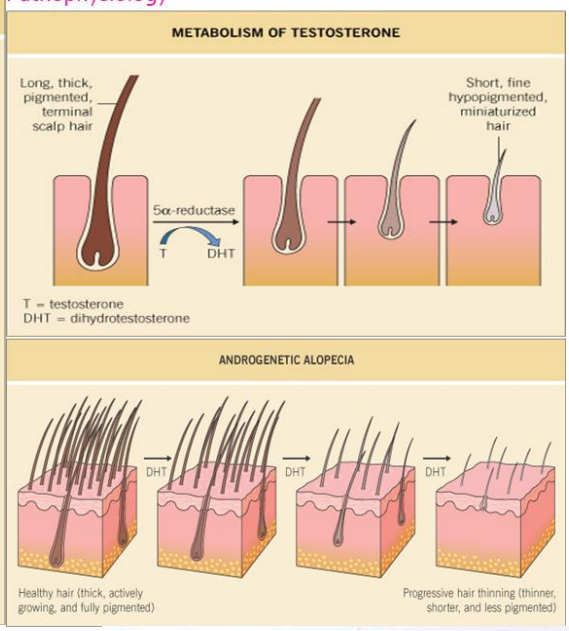


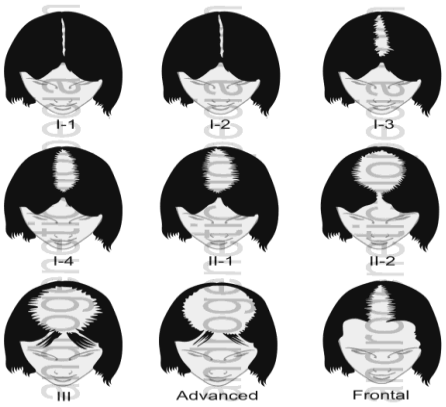
Patterened hair loss

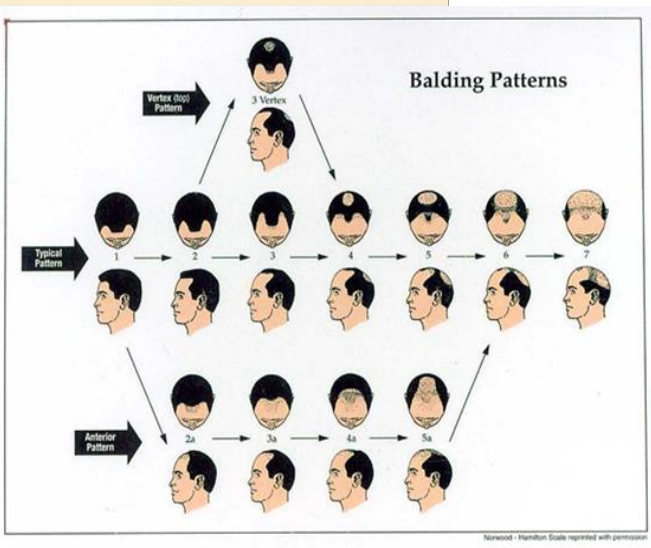
1. Androgenetic alopecia



Pathophysiology







Genetic→ gradual conversion of terminal hairs→ indeterminate → vellus hairs→ miniaturization of the follicles→ fibrous tracts

Self-renewal of the hair follicle via keratinocyte stem cells located at the area of the bulge of the hair follicle

Prognosis

- psychological
- actinic damage
- males →↑ myocardial infarction
  →prostatic hypertrophy
- early androgenetic alopecia ≤30 →femle→ PCOS
  →male→its phenotypic equivalent

Treatment

Minoxidil

Topical application⟶ 2% or a 5% solution

Finasteride

5-alpha reductase type 2 inhibitor

Only in men because it can produce ambiguous genitalia in a developing male fetus

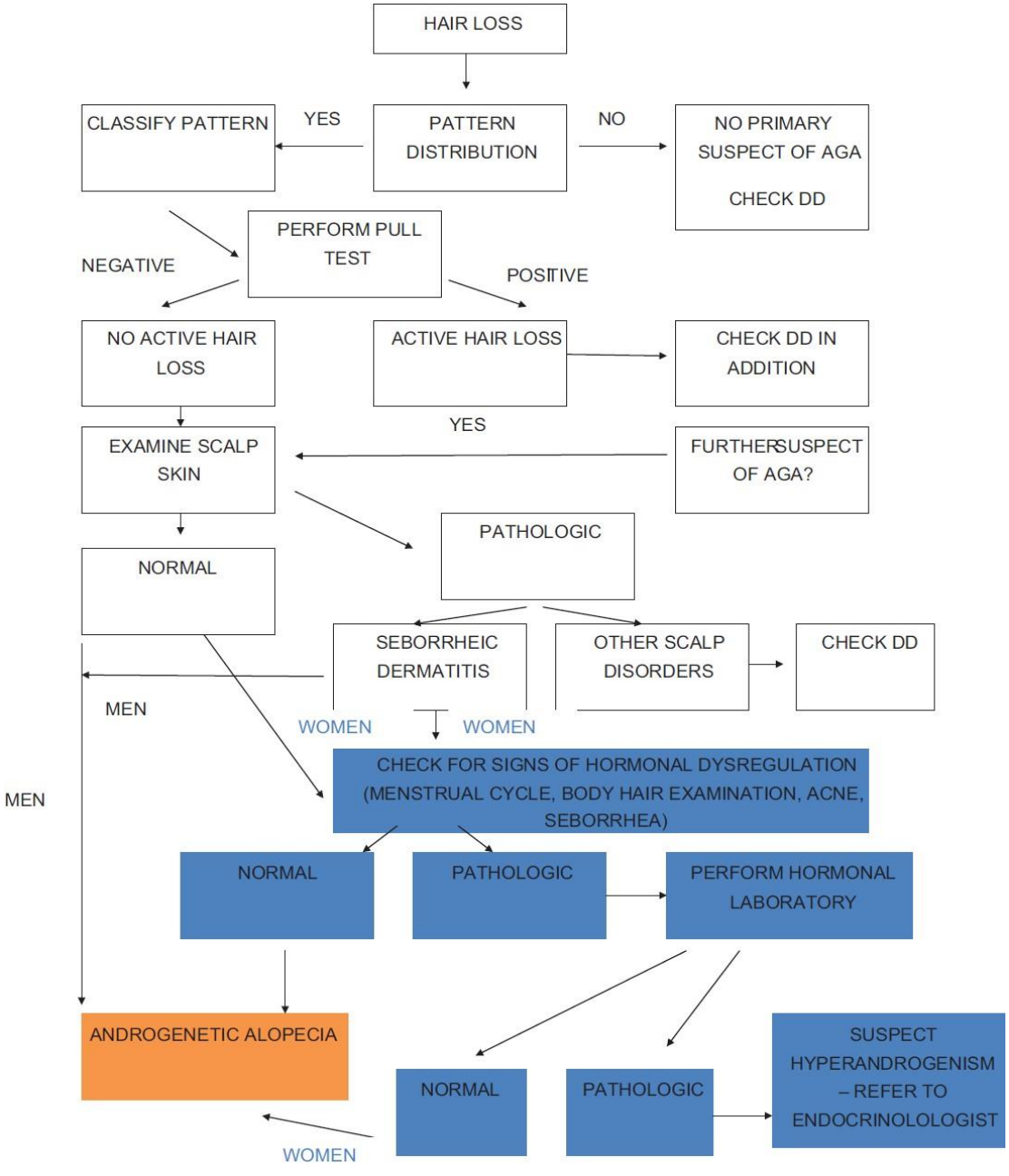
1 mg daily

Dutasteride⟶ inhibits type I and type II 5-a reductase isoenzymes

Low-level laser light therapy

Topical latanoprost 0.1%, a prostaglandin analogue

Women androgen suppressants **spironolactone** 200mg/d **oral contraceptives**



2. Trichotillomania

Definition

Chronic recurrent, irresistible urges to pull out hair despite trying to stop. From scalp eyebrows, eyelashes, trunk, arms, legs and pubic area.

C/p

→Sense of tension→ before pulling
→sense of pleasure →after pulling →in private and try to hide
→+ bite nails /chew lips/ skin picking/ acne excorié,
→+/- pets / dolls / materials
→Biting, chewing, Playing or eating pulled-out hair
→patches→ irregularly-shaped
→easy to reach →same side as dominant hand
→frontotemporal - vertex
→shortened hair / thinned / bald areas different from other hairs
→ +/- irreversible scarring
→+Eyelashes and eyebrows
→+Scratches, bruises and erythema

Types

- **Focused**→ some people pull their hair intentionally to relieve tension or distress
- **Automatic**→ without realizing they're doing it,

Risk factors

- **Family history** →Genetics
- **Age**→ teens boys and girls equally
  → increasing age→ females
- **Negative emotions**
- **Positive reinforcement.**

Complications

- **Emotional distress**
- **Problems with social**
- **Skin and hair damage**
  - skin infections
  - Blepharitis
  - Chronic pain →prolonged abnormal postures whilst hair pulling
  - Carpal tunnel syndrome
- **Hairballs.** Eating hair → matted hair ball (trichobezoar)

Investgation

- Hair pull test → negative
- Dermatoscopy and/or trichoscopy findings:
  - Reduced hair density
  - Broken hairs of uneven length
  - Trichoptillosis (split/frayed ends)
  - Hair powder
  - Short vellus hairs

Diffuse hair loss

1-Telogen effluvium

Pathophysiology

1- Affect all parts of the body only loss of scalp hair is symptomatic.
2- Normal →anagen →3 years
telogen (5-15%)→3 months
3-physiologic stress or hormonal change → enter telogen at one time.
4-active process →new anagen hairs →push telogen hair (1→6 months)

Causes

- Acute illness→ fever / infection/ surgery
- Chronic illness→ malignancy /chronic debilitating illness
- Hormonal changes→ pregnancy / delivery/ hypothyroidism
- Changes in diet
- Heavy metals
- Medications
- Psychological stress
- Scalp disease →seb/paplusqumous disese/LE

C/p

- Higher than expected number of short new hairs growing
- Shedding time→ measuring the length of the short hairs
- No → areas of total alopecia
  →Scarring
  →inflammatory scalp

Acute telogen effluvium →sudden onset
→less than 6 months

- ↑ hair shedding
- Hair → less dense
- Hair pull →Gentle →≥4 hairs → if normal→ active shedding stoped
  →Forced →≥ 10-20 hairs

Chronic telogen effluvium→ insidious
→longer than 6 months

- Difficult to identify an inciting event
- Decreased scalp hair density

Differential Diagnoses

- Alopecia Areata →complete bald of the area affected
- Anagen Effluvium→ diffuse non-scarring alopecia
- Androgenetic Alopecia →crown area or MO patteren
- Pediatric Syphilis →moth eating
- Scarring Alopecia→ inflammation and scarring
- Trichotillomania→ sharply defined alopecic lesions with broken stumps

Lap→ for Chronic telogen effluvium cause

Treatment →cause
→Reassurance
→Topical minoxidil

2-anagen effluvium

Defention →Diffuse non-scarring alopecia→ due hair shedding during the anagen phase→ diffuse non-scarring alopecia

Clinical

Abrupt shedding →all hair on the scalp+ all body →eyebrows, eyelashes and body hair

Causes

- Infection →bact/ fungal
- Drugs → 2 to 4 weeks of chemotherapy
  → recover fully within 3-6 months
  →+/- Curly hair &colour change
- Radiation→ Regrowth may be incomplete or may not occur toxins
- Autoimmune disease→ alopecia areata pemphigus vulgaris.
- Inherited/congenital condition→ loose anagen syndrome

Hair pull TEST

Treatment

- Topical minoxidil solution
- Scalp cooling during chemotherapy
- Cosmetic camouflage to eyebrows

3-short anagen syndrome

Defention Abnormally short scalp hair→ due to→ anagen 1-2years (normal →4 to 7 years)

Clinical→ Hair shaft → normal except length (not fragile)
→Density →normal

Hair-pull test →is often normal

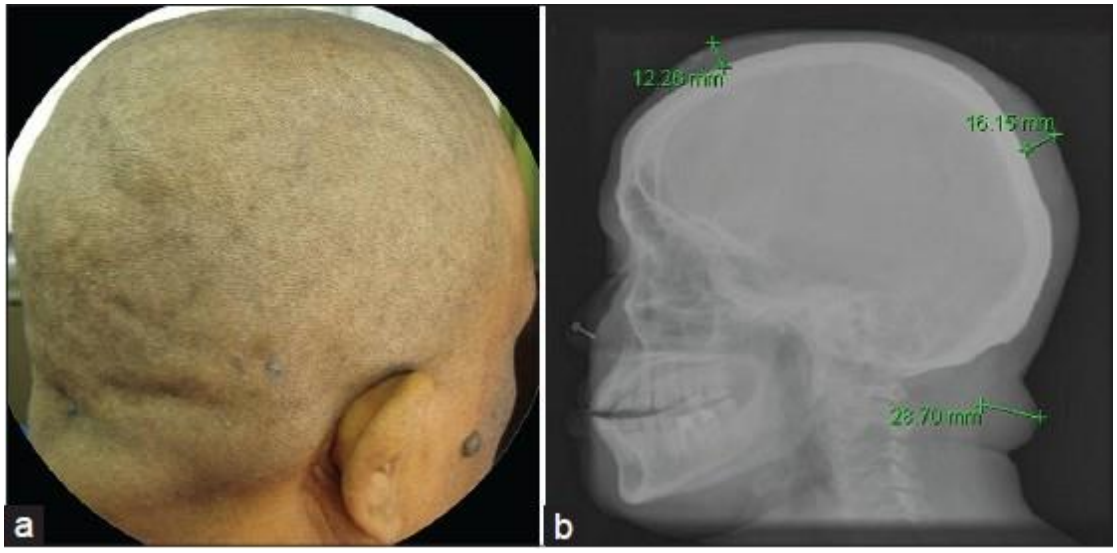
Treatment→ Minoxidil 5% solution → twice daily

3- Atrichia with papules

DEFENTION Rare AR reversible alopecia
Clinical →months of age with
→papular keratin cysts over the body
→extensive alopecia
→keratotic papules on the face and trunk
Avoid → systemic steroids
(misdiagnosed → alopecia universalis)

8- Lipedematous alopecia

CLINICAL→Thick boggy scalp + hair loss
→ Black women.
→Mild edema + thickening →adipose subcutaneous layer
→ occipital
→vertex
→ + androgenetic alopecia
Cause →compression →superficial blood capillaries →by ↑volume of the subcutaneous fat layer
Treatment →Finasteride → 1 mg / day → 1 year



B-Cicatricial (scarring) Alopecia

Theories

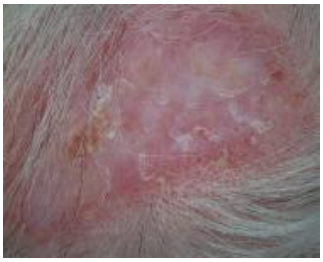
- Stem cell failure: Direct damage → the bulge region
- Sebaceous gland destruction: The sebaceous gland → have role in inner root sheath degeneration→ →hair shaft exit the skin normally

INFLAMATORY

1: Lymphocytic

1-DLE

- dry red patches→ hyperpigmented plaques + adherent scale
- carpet-tack sign→ indurated red or Follicular keratosis→ plugs of keratin within hair follicles
- Scalp lesions → temporary or permanent patches of hair loss



2- Lichen planopilaris

a- Classic LPP

→slowly progressive.
→smooth white patches →No hair follicle openings
→edges→ perifollicular scale and redness
→small patches →merge→larger patch
→hair→easily pulled out
→evidence of lichen planus elsewhere

Treatment

Medical

- Corticosteroids – potent topical, intralesional, oral
- Topical tacrolimus
- Hydroxychoroquine
- Tetracycline eg doxycycline
- Acitretin
- Ciclosporin
- Mycophenolate mofetil
- Pioglitazone

Surgery

Management protocol

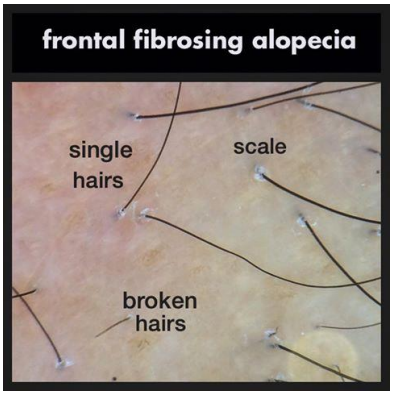
- Clinically and with a scalp biopsy
- Every 3 months→ Severity extent activity
- Oral hydroxychloroquine (usually 200 mg twice daily) 2-4 months, hydroxychloroquine is changed to ciclosporin (3-5mg/kg/d)

b- Frontal fibrosing alopecia

→post-menopausal women → symmetrical band of hair loss
→skin pale/ shiny /mildly scarred →without follicular openings
→edge →moth-eaten
→ redness and scaling →around hair follicles
→single "lonely" hairs →bald areas
→+AGA

Treatment

Oral steroids,
Anti-inflammatoryantibiotics such as tetracyclines,
Antimalarial
finasteride and dutasteride
antidiabetic agent pioglitazone



c- Graham-Little syndrome

- Women →middle-aged post-menopausal
- Scarring →scalp→ progressive patchy
  →easily pulled from the edge
- Nonscarring →armpits and groin
- Hair follicles→papules→ spiky rough
  →+Itch
- LP→body

Treatment

- Corticosteroids – topical, IL, oral
- Retinoids – acitretin
- PUVA (photochemotherapy)
- Ciclosporin
- Thalidomide

3- Brocq's alopecia

Pseudopelade of Brocq →is not a specific disease
→but a pattern of cicatricial alopecia
→If a definitive diagnosis of DLE, LLP. ..etc.→the term pseudopelade of Brocq cannot be used
→primary form of traditional pseudopelade may exist

Clinical

Patches→ round or oval
→random
→irregularl
→cluster
→porcelain white
→atrophic

+/- Eye brow beard

Differential Diagnoses

- Alopecia Areata
- Aplasia Cutis Congenita
- Central centrifugal cicatricial alopecia
- Discoid Lupus Erythematosus
- Follicular degeneration syndrome
- Lichen planopilaris
- Morphea
- Secondary syphilis
- Temporal triangular alopecia
- Tinea Capitis

4- Central centrifugal cicatricial alopecia (CCCA)

→ Middle-aged black women→ Bad Hair care practices
→+/-DM

Clinical

- Hair breakage →vertex or mid-scalp→ extends outward→ in a centrifugal manner
- Loss of the follicular openings →shiny scalp
- +itch and burning

Treatment

- Minoxidil
- Potent topical steroids (eg clobetasol) or IL steroids
- Calcineurin inhibitors: tacrolimus ointment, pimecrolimus cream
- Tetracyclines (doxycycline 100 mg twice daily→weeks to months)
- Hydroxychloroquine
- Ciclosporin.

Hair transplantation

5-Alopecia mucinosa

Cause

Follicular mucinosis→ mucin (hyaluronic acid) →hair follicles & sebaceous glands→ inflammation →degeneration

Clinical

nonscarring→scarring
Follicular →bald→ patches papules Nodules plaques
Slightly scaly & erythema
Active lesions→ mucinous material

Types

1-Primary →Acute (Pinkus type)→ few lesions
→children and adolescents
→ resolve spontaneously

→ Chronic→ Widespread numerous Widespread
→ horny plugs on top scar
→ Flat or raised patches
→ squeezed mucin

2- Secondary to→ inflammatory skin diseases
→malignant diseases→ cutaneous T-cell lymphoma

3-Urticaria-like follicular mucinosis
→ Middle-aged male
→ Papules or plaques
→ Itchy
→eyrthemtous seborrheic back ground
→Head &neck

Treatment

- Topical, intralesional and systemic corticosteroids
- Oral antibiotics such as minocycline
- Topical and systemic photochemotherapy (PUVA)
- UVA1 phototherapy
- Topical bexarotene 1% gel

6-Keratosis follicularis spinulosa decalvans

→Genetic cicatricial alopecia
→perifollicular erythema
→ Follicular hyperkeratosis
→scalp, eyebrows, and eyelashes
→ palm-plantar hyperkeratosis
→+ corneal opacity, photophobia

PICTURE 1: Follicular papules and hipotrichosis in the eyebrows with irregular eyelashes

Treatment→ disappointing
→ Topical paliative medication

2: Neutrophilic

1-Folliculitis Decalvans –the inflammatory phase of CCCA
→adolescence
→+ve Staphylococcus aureus
→Any hair
→recurrent
→patches→ round or oval
→perifollicular pustules

→Tufted folliculitis→ multiple hairs→ emerging → single opening→ while lower portions →separate and unaffected by the scarring process

→ "doll's hair" pattern
→found in→ scars
→acne keloidalis
→folliculitis decalvans
→dissecting cellulitis of the scalp
→lichen planus
→Melkersson-Rosenthal syndrome and
→hidradenitis suppurativa
→pemphigus vulgaris.

Differential Diagnoses

- Acne Keloidalis Nuchae
- Dissecting cellulitis of the scalp
- Kerion
- Lichen Planus

Treatment

- Oral antibiotics
- severe→ oral corticosteroid
- long-term remissions → Oral isotretinoin

2- Dissecting cellulitis

Papules and pustules, nodules and cysts→ ooze pus
Painful → scar
+ Acne and hidradenitis suppurativa.

Treatment

Topical treatments→ antiseptics antibiotics IL steroids
Tablets→Erythromycin, tetracyclines, clindamycin, and rifampicin.
Combinations of antibiotics are sometimes given.
Steroid→ reduce inflammation.
Dapsone
Retinoids
Surgery → cut open
→ cut out)
Laser hair removal
Photodynamic therapy
Biologics

3: Mixed

1-Acne keloidalis nuchae(folliculitis keloidalis)

Incorrect names→ not acne and the scars not true keloids

Clinical

Early→ papules → follicular
→firm
→dome-shaped
→pruritic→ excoriated
→Occipital region and nape of the neck

Late→ papules and pustules→ larger plaques→ Scarring alopecia
→keloidlike → bandlike distribution
→Tufted hairs→ periphery of the plaque

Causes

- Curved hairs
- Constant irritation
- Bacterial infections
- Autoimmune process

Differential Diagnoses

- Acne Conglobata
- Acne Vulgaris
- Acneiform Eruptions
- Folliculitis decalvans
- Hidradenitis Suppurativa
- Perifolliculitis Capitis Abscedens et Suffodiens

Treatment

- Avoid→ irritation
  →Short hair
- Antimicrobial cleanser
- topical steroids (intralesional injections) → large papules
- Oral tetracycline
- Oral isotretinoin
- Laser

2- Acne necrotica

Follicular papules →inflamed →blackened crusts→pox-like scars
→itchy
→painful

Cause →bacteria→ ↓ immune systems, bad hygine
→areas susceptible to irritation

Differential Diagnosis

- AcneVulgaris Impetigo
  Acneiform Eruptions Insect Bites
  Contact Dermatitis
  Papular Urticaria
  Pruritic papular eruption of HIV disease
  Rosacea

Treatment

Topical antibiotics
Antifungals shampoos
Antihistamines
Severe cases→ topical steroids
→Isotretinoin

3- Erosive pustular dermatosis

Cause

- Infection→ severely sun damaged skin
- Areas of scarring
- Skin cancer surgery
- shingles

Clinical

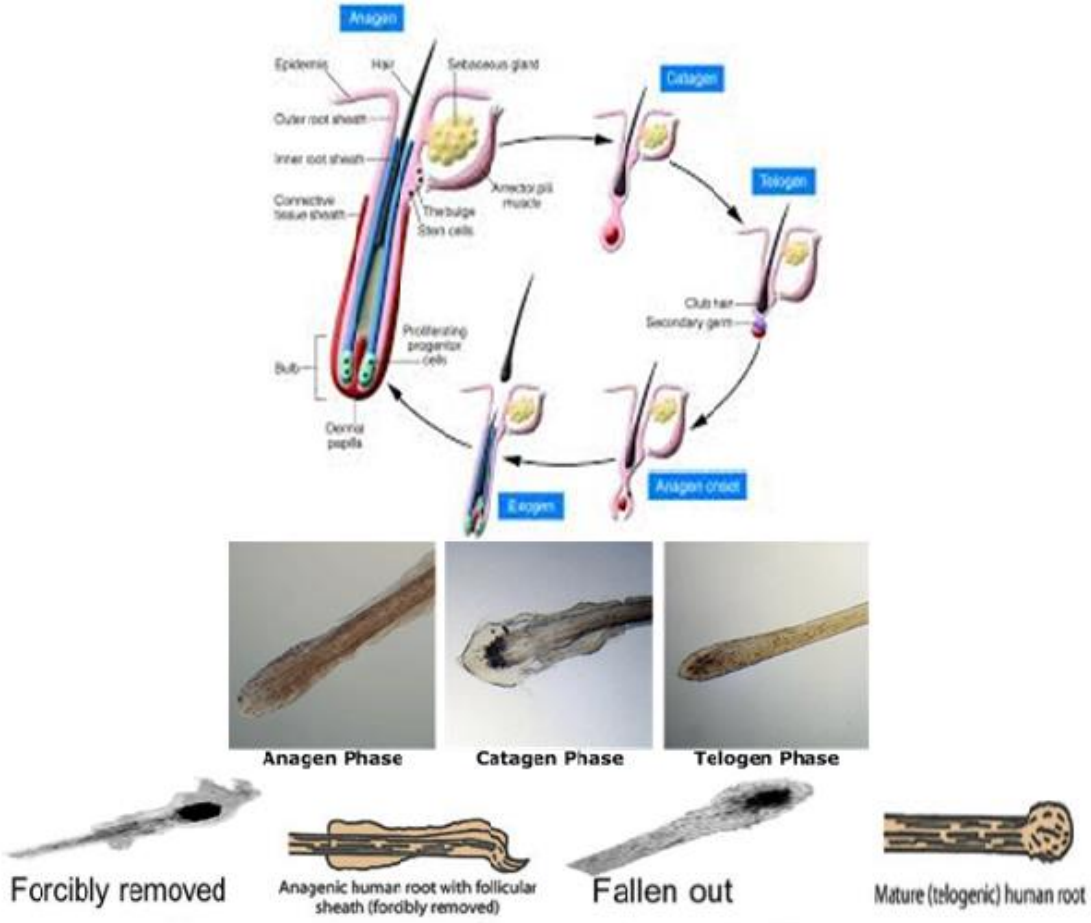
Tiny pustules→ lakes of pus+ yellow brown crusts→ removed→ raw area

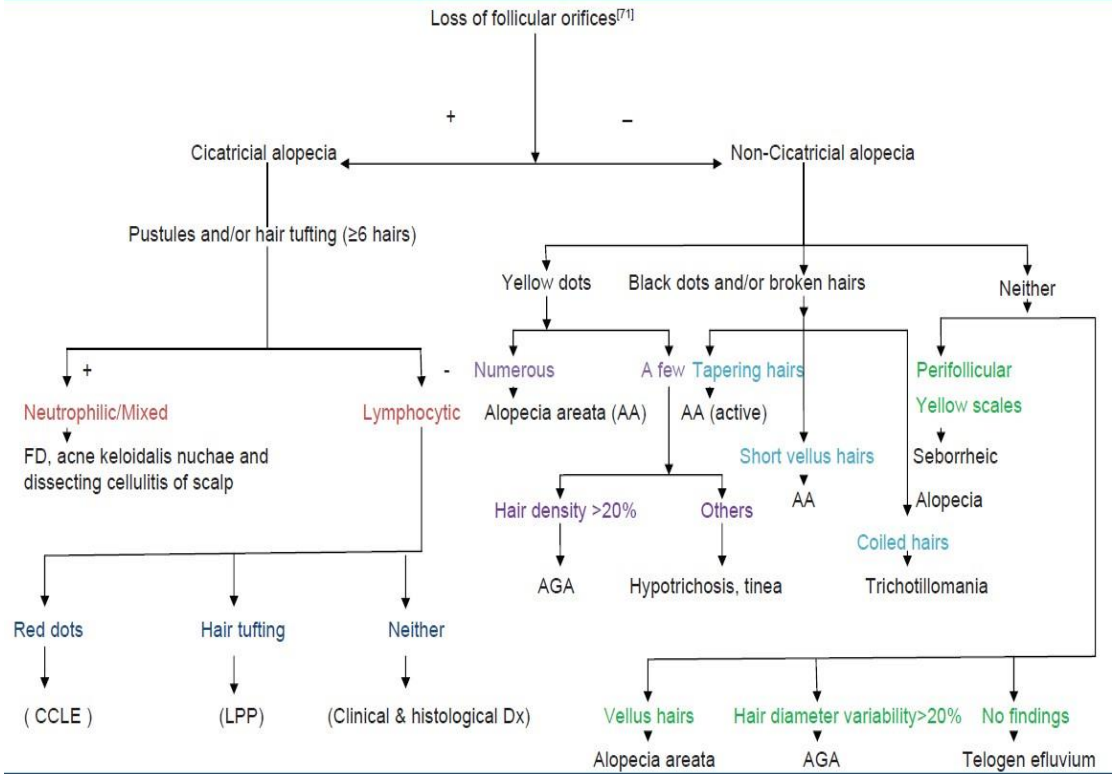
Complications

- Scar
- Secondary bacterial infection
- Skin cancer

Treatment

- Potassium permanganate
- Oral anti-Staphylococcal antibiotics
- Potent or ultrapotent topical steroids
- calcineurin inhibitor


Anagen
Epidermis
Hair
Sebaceous gland
Outer root sheath
Inner root sheath
Connective tissue sheath
Arrector pili muscle
The bulge
Stem cells
Catagen
Telogen
Club hair
Secondary germ
Proliferating progenitor cells
Bulb
Dermal papilla
Exogen
Anagen onset
Anagen Phase
Catagen Phase
Telogen Phase
Forcibly removed
Anagenic human root with follicular sheath (forcibly removed)
Fallen out
Mature (telogenic) human root


Loss of follicular orifices[71]
+
–
Cicatricial alopecia
Non-Cicatricial alopecia
Pustules and/or hair tufting (≥6 hairs)
Yellow dots
Black dots and/or broken hairs
Neither
+
-
Numerous
A few
Tapering hairs
Perifollicular
Yellow scales
Neutrophilic/Mixed
Lymphocytic
Alopecia areata (AA)
AA (active)
FD, acne keloidalis nuchae and dissecting cellulitis of scalp
Short vellus hairs
Seborrheic
AA
Alopecia
Hair density >20%
Others
Coiled hairs
AGA
Hypotrichosis, tinea
Trichotillomania
Red dots
Hair tufting
Neither
(CCLE)
(LPP)
(Clinical & histological Dx)
Vellus hairs
Hair diameter variability>20%
No findings
Alopecia areata
AGA
Telogen efluvium

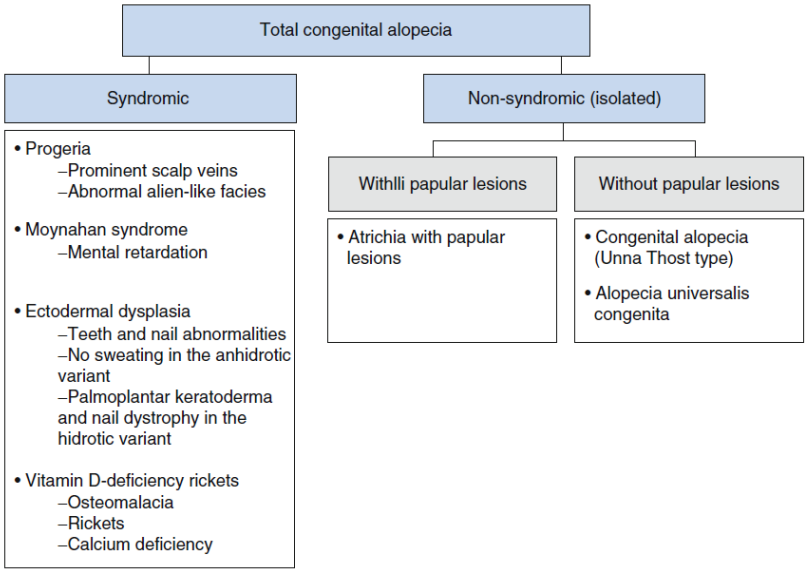


Fig. 6.5 Differential diagnosis of total congenital alopecia